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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/051,442
Filing Date: January 18, 2002
Appellant(s): CHANDHOKE ET AL.

Jeffrey C. Hood
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/17/07 appealing from the Office action mailed 10/20/06.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6298474	Blowers	4-1999
6442442	Weinhofer	9-1999
6801850	Wolfson	10-2001

Windmill Software Ltd, Glossary of Data Acquisition, July 2001

Digital Camera Data Acquisition Software from Softmap, Inc. 2002//Dice Design <http://softmap.com/dcdas.html >

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 53-54, 57-60 are rejected under 35 U.S.C. 102(e) as being anticipated by Blowers et al., US Patent 6298474, hereinafter Blowers.

As in Claim 53, Blowers teaches a computer-implemented method, memory medium and system for creating a prototype that includes machine vision, and data acquisition (DAQ) functionality, the method comprising: displaying a graphical user interface (GUI) that provides GUI access to a set of operations (Col. 8, line 61 et seq.), wherein the set of operations includes, one or more machine vision operations, and one or more DAQ operations; creating a sequence of operations, including operations in the sequence in response to user input selecting each operation in the operations from the GUI (Col. 3, lines 20-45), the plurality of operations are included in the sequence without receiving user input specifying program code for performing the plurality of operations (Col. 3, line 64 et seq.), wherein the operations included in the sequence includes a machine vision operation and a data acquisition operation (Col. 8, lines 9-19), wherein the data acquisition operation is operable to control a DAQ measurement device to acquire measurement data of a device (Col. 11, line 65 et seq. and Caliper tool 63) under test (computer sensor for Caliper tool 63) and storing information representing the sequence of operations in a data structure (Col. 13, lines 10-54), wherein the sequence of operations comprises the prototype (Figure 6 and corresponding text).

As in Claim 54, Blowers teaches accessing the data structure to determine operations in the sequence; determining software routines to execute in order to perform the operations in the sequence and executing the software routines (Col. 8, line 61 et seq.).

As in Claim 57, Blowers teaches wherein the prototype is operable to perform acquiring images of the device under test, analyze the acquired images of the device under test; and acquiring measurement data of the device under test (Col. 11, line 65 et seq.).

As in Claim 58, Blowers teaches the prototype is operable control an image acquisition device to acquire an image of the device under test; and control a data acquisition measurement device to acquire measurement data of the device under test (Col. 11, line 65 et seq.).

As in Claim 59, Blowers teaches performing the sequence of operations by executing software rountines in order to perform each operation in the sequence (Col. 4, line 64 et seq.).

As in Claim 60, Blowers teaches automatically generating a graphical program based on the sequence of operations executable to perform the sequence of operations, a plurality of interconnected nodes ("developing a graphical, control flow structure such as a tree structure", Col. 3, lines 15-16) that visually indicate functionality of the graphical program (Col. 8, line 49 et seq.) and automatically including the nodes without specifying user input of the nodes (Col. 3). (Col. 8, line 61 et seq.).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 6-20, 24, 26-30, 32-40, 42-46, 48-52, 61-62, 66-69, 71-73, 76 and 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blowers et al., US Patent 6298474, hereinafter Blowers, and further in view of Weinhofer, US Patent 6442442.

As in Claims 1, 37, 43-45 and 61, Blowers teaches a computer-implemented method, memory medium and system for creating a prototype that includes machine vision, and data acquisition (DAQ) functionality, the method comprising: displaying a graphical user interface (GUI) that provides GUI access to a set of operations (Col. 8, line 61 et seq.), wherein the set of operations includes, one or more machine vision operations, and one or more DAQ operations; creating a sequence of operations, including operations in the sequence in response to user input selecting each operation in the operations from the GUI (Col. 3, lines 20-45), the plurality of operations are included in the sequence without receiving user input specifying program code for performing the plurality of operations (Col. 3, line 64 et seq.), wherein the operations included in the sequence includes a machine vision operation and a data acquisition operation (Col. 8, lines 9-19), wherein the data acquisition operation is operable to control a DAQ measurement device to acquire measurement data of a device (Col. 11, line 65 et seq. and Caliper tool 63) under test (computer sensor for Caliper tool 63) and storing information representing the sequence of operations in a data structure (Col. 13, lines 10-54), wherein the sequence of operations comprises the prototype (Figure 6 and

corresponding text) an the processor is operable to execute the sequence of operations (Figure 3 and corresponding text). While Blowers teaches machine vision and data acquisition operations controlled by a GUI through a user specified sequence of operations in a data structure, they fail to show the motion control functionality with a motion control operation as recited in the claims. In the same field of the invention, Weinhofer teaches a graphical interface for creating a prototype through a specified sequence of operations in a data structure similar to that of Blowers. In addition, Weinhofer further teaches motion control operation and functionality through graphical programming (Col. 3, line 63 et seq. and Fig. 3). It would have been obvious to one of ordinary skill in the art, having the teachings of Blowers and Weinhofer before him at the time the invention was made, to modify the machine vision and data acquisition operations and functionality controlled by a GUI through a user specified sequence of operations in a data structure taught by Blowers to include the motion control operation and functionality of Weinhofer, in order to obtain a graphical programming interface for machine vision, data acquisition and motion control. One would have been motivated to make such a combination because an all-purpose graphical automotive controller would have been obtained, as taught by Weinhofer.

As in Claims 2, 38, 46 and 62, Blowers teaches accessing the data structure to determine operations in the sequence and executing the software routines (Col. 8, line 61 et seq.).

As in Claims 3, 35 and 39, Blowers teaches receiving user input to the graphical user interface specifying a first parameter value for a first operation in the sequence

wherein storing the information representing the sequence of operations in the data structure comprises storing the first parameter value in the data structure; wherein the method further comprises executing software routines corresponding to operations in the sequence, wherein executing comprises executing a first software routine corresponding to the first operation, passing the first parameter value to the first software routine (Col. 9, line 7 et seq.).

As in Claims 4 and 40, Blowers teaches the information representing the sequence of operations in the data structure does not comprise programming code (Col. 3, line 64 et seq.).

As in Claim 6, Blowers teaches wherein the machine vision operation in the sequence is operable to perform one of acquiring image of the device under test, or analyze the acquired image of the device under test; and acquiring measurement data from a DAQ device (Col. 11, line 65 et seq. and Caliper tool 63).

As in Claims 7-8, 30, 42, 48-49, Blowers teaches wherein the machine vision operation in the sequence is operable to perform one of acquiring image of the device under test, or analyze the acquired image of the device under test; and acquiring measurement data from a DAQ device (Col. 11, line 65 et seq. and Caliper tool 63). While Blowers teaches machine vision and data acquisition operations controlled by a GUI through a user specified sequence of operations in a data structure, they fail to show the motion control functionality with a motion control operation as recited in the claims. In the same field of the invention, Weinhofer teaches a graphical interface for creating a prototype through a specified sequence of operations in a data structure

similar to that of Blowers. In addition, Weinhofer further teaches a motion control operation to move a device under test (Col. 3, line 63 et seq. and Fig. 3). It would have been obvious to one of ordinary skill in the art, having the teachings of Blowers and Weinhofer before him at the time the invention was made, to modify the machine vision and data acquisition operations and functionality controlled by a GUI through a user specified sequence of operations in a data structure taught by Blowers to include the motion control operation and functionality of Weinhofer, in order to obtain a graphical programming interface for machine vision, data acquisition and motion control. One would have been motivated to make such a combination because an all-purpose graphical automotive controller would have been obtained, as taught by Weinhofer.

As in Claims 9, 36, 50 and 66, wherein the prototype is operable control an image acquisition device to acquire an image of the device under test; and control a data acquisition measurement device to acquire the measurement data of the device under test(Col. 11, line 65 et seq.) and all of the limitations of Claim 1 *supra*. While Blowers teaches machine vision and data acquisition operations controlled by a GUI through a user specified sequence of operations in a data structure, they fail to show the motion control functionality with a motion control operation to move an the device under test as recited in the claims. In the same field of the invention, Weinhofer teaches a graphical interface for creating a prototype through a specified sequence of operations in a data structure similar to that of Blowers. In addition, Weinhofer further teaches motion control operation and functionality to move an object through graphical programming (Col. 3, line 63 et seq. and Fig. 3). It would have been obvious to one of

ordinary skill in the art, having the teachings of Blowers and Weinhofer before him at the time the invention was made, to modify the machine vision and data acquisition operations and functionality controlled by a GUI through a user specified sequence of operations in a data structure taught by Blowers to include the motion control operation and functionality of Weinhofer, in order to obtain a graphical programming interface for machine vision, data acquisition and motion control. One would have been motivated to make such a combination because an all-purpose graphical automotive controller would have been obtained, as taught by Weinhofer.

As in Claims 10, 51 and 67, Blowers teaches performing the sequence of operations by executing software routines in order to perform each operation in the sequence (Col. 4, line 64 et seq.).

As in Claim 11, Blowers teaches creating program instructions executable to perform the sequence of operations; executing the program instructions (Col. 2, line 47 et seq.),

As in Claim 12, Blowers teaches configuring a first operation in the sequence in response to user input specifying configuration information for the first operation, which changes a function performed by the first operation, displaying information in response to user input specifying the configuration information to visually indicate the change in the function performed by the first operation (Col. 9, lines 1-10, Col. 11, line 15).

As in Claim 13, Blowers teaches wherein user input specifying configuration information for the first operation does not include user input specifying program code (Col. 3, lines 64-65).

As in Claim 14, Blowers teaches displaying a graphical panel including graphical user interface elements for setting properties of the first operation and the user input to the graphical panel to set one or more properties of the first operation (Figures 5-7 with corresponding text).

As in Claim 15, Blowers teaches the graphical panel is automatically displayed in response to including the first operation in the sequence (Col. 9, line 7 et seq. and Col. 12, lines 8-10).

As in Claim 16, Blowers teaches receiving user input requesting to configure the first operation, user input to the a graphical panel for configuring the first operation in response to the request (Col. 8, line 61 et seq.).

As in Claim 17, Blowers teaches the graphical user interface includes an area which visually represents the operations in the sequence (Figure 7 and corresponding text); wherein the method further comprises: for each operation included in the sequence, updating the area usually representing the operations in the sequence to illustrate the included operation in response to user input selecting operation from the GUI (simple drag-drop functionality, Col. 8, line 61 et seq.).

As in Claim 18, Blowers teaches the area visually representing the operations in the sequence displays icons (Figure 7 and corresponding text), wherein each icon visually indicates one of the operations in the Sequence (Col. 8, lines 64-66); wherein said updating the area visually representing the operations in the sequence to illustrate the included operation comprises displaying a new icon to visually indicate the included operation (simple drag-drop functionality, Col. 8, line 61 et seq.).

As in Claim 19, Blowers teaches the graphical user interface displays buttons, wherein each button corresponds to a particular operation and is operable to add the operation to the sequence in response to user input selecting a button; including the operations in the sequence in response to user input selecting a buttons from the plurality of buttons (Col. 12, lines 48-52 and Figure 5-7 with corresponding text).

As in Claim 20, While Blowers teaches machine vision and data acquisition operations controlled by a GUI through a user specified sequence of operations in a data structure, they fail to show the motion control functionality with a motion control operation as recited in the claims. In the same field of the invention, Weinhofer teaches a graphical interface for creating a prototype through a specified sequence of operations in a data structure similar to that of Blowers. In addition, Weinhofer further teaches motion control operation and functionality through graphical programming (Col. 3, line 63 et seq. and Fig. 3) including a straight line move operation (Col. 6, lines 44 et seq.). It would have been obvious to one of ordinary skill in the art, having the teachings of Blowers and Weinhofer before him at the time the invention was made, to modify the machine vision and data acquisition operations and functionality controlled by a GUI through a user specified sequence of operations in a data structure taught by Blowers to include the motion control operation and functionality including a straight line move operation of Weinhofer, in order to obtain a graphical programming interface for machine vision, data acquisition and motion control including a straight line move operation. One would have been motivated to make such a combination because an

all-purpose graphical automotive controller would have been obtained, as taught by Weinhofer.

As in Claims 24, 52 and 68, Blowers teaches automatically generating a graphical program based on the sequence of operations executable to perform the sequence of operations, a plurality of interconnected nodes ("developing a graphical, control flow structure such as a tree structure", Col. 3, lines 15-16) that visually indicate functionality of the graphical program (Col. 8, line 49 et seq.) and automatically including the nodes without specifying user input of the nodes (Col. 3). (Col. 8, line 61 et seq.).

As in Claim 26, Blowers teaches the graphical program comprises a graphical data flow program (Col. 3, lines 14-35 and Col. 11, line 15) wherein the plurality of interconnected nodes ("developing a graphical, control flow structure such as a tree structure", Col. 3, lines 15-16) visually indicates data flow among the nodes (Col. 8, line 49 et seq.).

As in Claim 27, Blowers teaches automatically generating a text-based program based on the sequence of operations, executable to perform the specified sequence of operations; wherein the text-based program comprises lines of textual source code, wherein automatically generating the text based program comprises automatically including the lines of textual source code in the text-based program without user input specifying the lines of textual source code (Col. 3, lines 15-45, Col. 8, line 61 et seq.).

As in Claim 28, Blowers teaches displaying a first application GUI, creating the sequences comprises the first application creating the sequence, the first application

receiving a request to invoke execution of the sequence from a second program external to the first application (Fig. 3 and corresponding text), the first application executing the sequence of operations in response to the request (Col. 11, lines 58-61) from the second program by invoking software routines (Col. 9, line 7 et seq.).

As in Claim 29, Blowers teaches automatically converting the sequence of operations to a hardware configuration format usable for configuring hardware of an embedded device to perform the sequence of operations and configuring the hardware of the embedded device to perform the sequence of operations using the hardware configuration format (Col. 2, line 47 et seq.).

As in Claim 32, Blowers teaches storing information representing the sequence of operations in a data structure (See Claim 1 rejection supra).

As in Claim 33, Blowers teaches the information representing the sequence of operations in the data structure does not comprise program code (Col. 3, line 64 et seq.).

As in Claim 34, Blowers teaches accessing the data structure to determine operations in the sequence and determining software routines to execute in order to perform the operations in the sequence and executing the software routines (Col. 8, line 61 et seq.).

As in Claims 69, 73, 76 and 78, Blowers teaches displaying a visual indication of results of performing the sequence while the sequence is being created, wherein the visual indication enables a user to evaluate the results of performing the sequence, wherein interactively displaying the visual indication comprises: for each operation in at

least a subset of the operations included in the sequence, updating the displayed visual indication in response to including the operation in the sequence in order to visually indicate a change in the results of performing the sequence (Col. 4, lines 46 et seq.), wherein the change is caused by including the operation in the sequence, wherein updating the displayed visual indication provides interactive visual feedback to the user indicating the change caused by including the operation in the sequence (rejection of Claim 12 *supra*).

As in Claim 71, Blowers and Weinhofer discloses automatically converting the sequence of operations to a hardware configuration format. Blowers and Weinhofer fails to explicitly teach configuring the FPGA device to perform the sequence of operations using the hardware configuration format. as recited in the claims. Within the field of the invention, it would be obvious to one of ordinary skill in the art to program a removable device like a FPGA. One would have been motivated to make such a combination because a removable hardware device for executing sequenced instructions would have been obtained.

As in Claim 72, Weinhofer teaches controlling the DAQ measurement device to acquire waveform data of the device under test (fig. 2, 6 and corresponding text).

Claims 21-23, 70, 74-75, 77, 79 and 80-81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blowers et al., US Patent 6298474, herinafter Blowers, Weinhofer, US Patent 6442442 and Wolfson, US Patent 6801850.

Blowers and Weinhofer teach the disclosed claimed subject matter of Claims 1, 30, 36, 37, 43, 45 and 61.

As in Claims 21, 70, 74-75, 77, 79 and 80-81, While Blowers and Weinhofer teach machine vision and data acquisition operations controlled by a GUI through a user specified sequence of operations in a data structure, the sequence including a motion control operation (Weinhofer Col. 6, lines 39-41), and further comprising displaying a view of the motion control performed by the motion control operations in the sequence on the graphical user interface (Weinhofer Col. 3, line 63 et seq.), wherein the view graphically previews the cumulative movement specified by the motion control operations in the sequence (Weinhofer Fig. 3 and corresponding text), they fail to show the graph illustrating spatial trajectory cumulatively performed by the motion control operations as recited in the claims. In the same field of the invention, Wolfson teaches a graphical interface for creating a prototype through operations in a data structure similar to that of Blowers and Weinhofer. In addition, Wolfson further teaches graph illustrating spatial trajectory cumulatively performed by the motion control operations (Fig. 4 and corresponding text). It would have been obvious to one of ordinary skill in the art, having the teachings of Blowers and Weinhofer before him at the time the invention was made, to modify a graphical programming interface for machine vision, data acquisition and motion control including a straight line move operation taught by Blowers and Weinhofer to include teaches graph illustrating spatial trajectory cumulatively performed by the motion control operations of Wolfson, in order to obtain a machine vision, data acquisition and motion control sequenced control program

including a graph illustrating spatial trajectory cumulatively performed by the motion control operations. One would have been motivated to make such a combination because a more accurate visual representation could be displayed, as taught by Wolfson.

As in Claim 22, Blowers teaches a two-dimensional position view for viewing a two-dimensional display of position data of the sequence in one or more of an XY, YZ, or ZX plane (Fig. 8 and corresponding text).

As in Claim 23, Wolfson teaches a three-dimensional position view for viewing a three-dimensional display of position data of the sequence (Fig. 4 and corresponding text).

(10) Response to Argument

Blowers teaches displaying a GUI that provides access to a set of operations (Col. 8, line 61 et seq.), including machine vision operations and DAQ operations;

The appellant states that Blowers does not teach "creating a sequence of operations, including operations in the sequence in response to user input selecting each operation in the operations from the GUI, ... wherein the plurality of operations included in the sequence includes a machine vision operation and a data acquisition operation, wherein the data acquisition operation is operable to control a DAQ measurement device to acquire measurement data of a device under test" (pg 11 of the appeal brief). The "DAQ measurement device" can be interpreted by the camera of Blowers, the calipers, or merely as the computer with the software that controls the

camera, retrieves the image and makes the measurements of the device under test according to the user's control. Under the lattermost interpretation, the computer itself is the DAQ measurement devices providing machine vision and data acquisitions operations (Col. 8, lines 9-19), the user's inputs create a sequence through the computer (Col. 3, lines 20-45) and the sequence controls the device to acquire the measurement data (Col. 11, line 65 et seq. and Caliper tool 63) of the device under test (computer sensor for Caliper tool 63). This interpretation also clarifies the issues raised on pg. 13 of the appeal brief regarding "two different kinds of devices". Furthermore the appellant admits that "Blowers teaches acquiring images of an object (e.g., images of a device under test) and analyzing or measuring visual features in the acquired image." (lines 1-2 of pg 16 appeal brief).

In response to the arguments that Blowers fails to teach DAQ functionality and a GUI with a DAQ operation, the examiner disagrees (pg. 12 of the appeal brief). "Data Acquisition" is a broad term and is taught by the prior art. The examiner notes the following definition and example of "Data Acquisition" from sources considered to be those skilled in the art. Notably: Windmill Software Ltd, Glossary of Data Acquisition, July 2001, that defines Data Acquisition as "The automatic collection of data from sensors, instruments and devices: in a factory, laboratory or in the filed." and "Digital Camera Data Acquisition Software from Softmap, Inc. "SMDigCam real-time data acquisition software provides you with the capability to acquire images in a real-time environment including control of all the camera operation aspects."

It is further noted that the exact terminology "DAQ" and "Data Acquisition" are not needed in the prior art in order to read upon them (line 3, pg. 15 of the appeal brief). The computer of Blowers operates as a device that acquires data, and therefore can be read as a Data Acquisition device. The appellant has not shown the DAQ measurement device as anything other than it's name implies: a device that acquires measurement data. The computer of Blowers clearly reads upon this.

The arguments with respect to Claim 60 begin to discuss the limitation "automatically generating a graphical program based on the sequence of operations ... automatically including the plurality of interconnected nodes in the graphical program without the user specifying the nodes." In both the claims and Blowers, the user generates the sequence which the systems use to automatically generate the nodes of the graphical program, the user does not specify the nodes themselves in either implementation. This is a simplistic concept of programming called encapsulation. Encapsulation can be thought of as a black box, where the user knows the value they want to find, but not the nodes that are used to retrieve that result. Encapsulation allows the user to create a sequence without having to write the code to carry it out. As seen in the cited Figures 6 and 7 the user uses the icons such as "Acquire", "Alignment", "Set Pass" etc. to represent the sequence without writing the underlying code that performs these functions (Col. 3, lines 64-65).

It has been shown above that Blowers does, in fact, teach the limitations claimed as deficient by the appellant in the 102 rejections. Furthermore, the appellant tries to show how Weinhofer does not teach, these limitations. The examiner treats these

arguements as moot because the rejection does not rely on Weinhofer to teach them (pg. 19 of the appeal brief).

In response to applicant's argument that Blowers and Weinhofer are not combinable (pg. 20 of the appeal brief), the examiner disagrees. Blowers and Weinhofer both acquire data and control systems via a sequential programming method and therefore are both in the field of the applicant's endeavor. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Weinhofer explains how motion controllers are part of many industrial control systems including programmable controller systems (Col. 1, line 48) and therefore can be interpreted as a control system for many different purposes and that it would be advantageous to use Weinhofer along with such other systems. Blowers teaches such a system in it's programmable controller system. Weinhofer further explains how motion control systems have become more complex, and that in order to make the system more flexible, it would be advantageous to use something other than a sequential programming language, (Col. 2, line 57- Col. 3, line 25) like a sequential program as taught by both Blowers (Col. 4, line 65 et seq.) and Weinhofer (Col. 6, line 64). While Weinhofer does not explicitly state the exact terminology of the

graphical automotive controller to be all-purpose, the above recitations of Weinhofer show that it may be used in plethora of systems like the one used in Blowers.

The appellant goes on to claim that Weinhofer's teachings of the user placing icons to represent data flow constitutes writing code, the examiner disagrees and refers to the aforementioned discussion of encapsulation.

The arguments of Dependent Claims 15 and 16 apply to Dependent Claim 14 from which they depend. Claim 7 shows a property window, graphics panel that is displayed in accordance with a placed operation.

The applicant's arguments regarding claim 26 (pg. 25 of the appeal brief) state that Blowers does not teach a graphical data flow program where the nodes visually indicate data flow that occurs among nodes. The nodes indicate if then else statement which are a visually indication of which way the flow will occur, (fig. 7).

The applicant's arguments regarding claim 27 (pg. 26 of the appeal brief) state that Blowers does not teach automatically generating a text-based program based on the sequence of operations with lines of textual source code, comprising automatically including the lines of textual source code in the text-based program without user input specifying the lines of textual source code. The examiner notes that this limitation is explicitly or inherently included in practically every programming language, including COM (Col. 4, lines 40-44) and is the exact reason for Blowers statement Col. 3, lines 64-65.

As per the arguments regarding Claim 28 (pg. 27 of the appeal brief), Blowers clearly teaches storing the sequence of commands (Col. 11, lines 55-57), and allowing a remote program to invoke the execution of the sequence (Col. 11, lines 58-61).

In response to the applicants arguments regarding Claim 29, the control software of Blowers operates to control the camera's course of operation and perform the sequence of operations using the hardware configuration format (as referenced *supra).*

The arguments regarding the limitation "displaying a visual indication of results of performing the sequence while the sequence is being created, wherein the visual indication enables a user to evaluate the results of performing the sequence" (page 28 of the appeal brief) are not persuasive. Each step has an icon and a name that is a visual indication of the result that will be achieved from that step which enables the user to determine what will be done by that sequence, ie. in Fig. 6, an image will be acquired, alignment will be performed, etc. The examiner notes that the claims recite displaying an indication of the results, not the results themselves. The updating step the appellant claims that Blowers is missing is simply a result of the user creating the sequence. When a new step is added, it's icon is displayed with the corresponding text.

The arguments of Claim 71 where never presented before now. FPGA are a standard commonly used implementation in the field of computer programming dating back to the 1980s and it would have been obvious to use program an FPGA in order to implement the sequence in another device. Anyone of ordinary skill in the art knows system designers use FPGAs on a regular basis to implement any programmed function and a wide array of devices.

In response to appellants reminder (pg. 32 of the appeal brief), "that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned" *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992), the examiner asserts that Wolfson is reasonably pertinent to the particular problem and at very lease, related to the field of applicant's endeavor. Wolfson teaches tracking movement of an object as stated by the appellant. The application at hand discusses tracking a device under test, and in a subset of the claims, discusses measuring (ie. tracking) a trajectory (movement of an object) just as in Wolfson.

The appellants continue to debate Wolfson's teachings of the claim limitations (pg. 32 of the brief), specifically, Claim 21. Blowers teaches the performing of two or more motion control operations. Wolfson is specifically included to show that the generation and display spatial trajectory graph is not new. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Furthermore the additional arguments presented regarding Claim 22 and 70 are not persuasive. The rejection cites Fig. 8 of Blowers not Wolfson to teach Claim 22 as argued by the appeal brief (pg. 33). The right hand panel of Blowers shows the object as it is moved according to a camera view in 2D. As per Claim 70, Blower in combination with Weinhofer and Wolfson teach the system constantly changing

according to which motion control event is going on, therefore the display being updated each step as seen by the runtime interface of Blowers (Col. 12, lines 24-25).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Sara M Hanne

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Examiner Art Unit 2173

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SOFTMAP MENU

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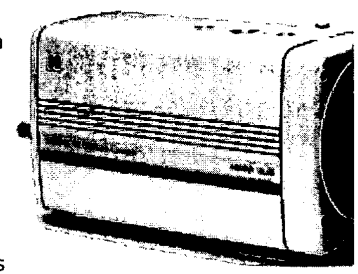
Digital Camera Data Acquisition Software

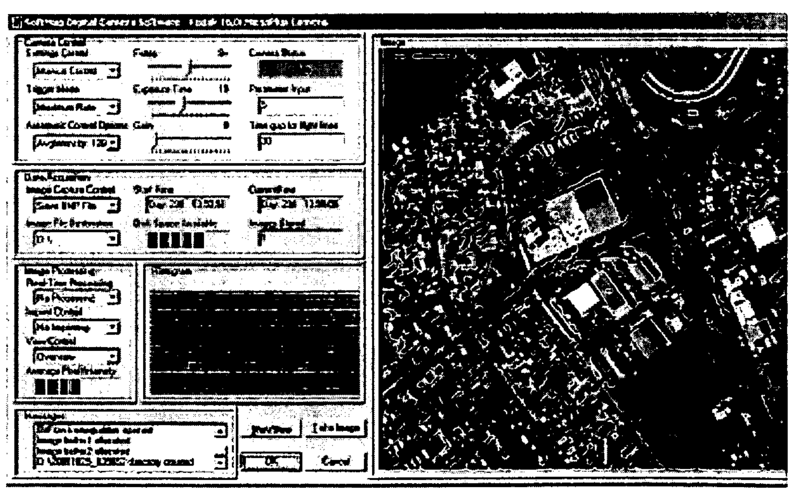
SMDIGCAM DATA ACQUISITION PROGRAM FOR ROPER SCIENTIFIC/KODAK MEGAPLUS 16.8i DIGITAL CAMERA



The SMDigCam real-time data acquisition software was developed to support the MegaPlus 16.8i digital camera from **Roper Scientific**. The camera is based on Kodak technology and is built around the KAF 16800, a 4,096 by 4,096 CCD chip, which is available if monochrome and color versions. The pixel size is 9 x 9 micron, and the focal plane sensor area is 36.86 mm by 36.86 mm. The highest data acquisition rate is about 2 FPS. The camera equipped with Rolleiflex medium format PQS series lenses, which offers high-quality optics and in between lens shutter, is ideal for demaning applications such as airborne mapping.

Functionality

The SMDigCam real-time data acquisition software provides you with the capability to acquire imgs in real-time environment including the control of all the camera operation aspects. Specifica offers the following features:



- SMDigCam is designed to take advantage of Windows© NT/2000/XP technology, includ Windows user interface as well as its multitasking ability.
- AP32 makes full use of Windows' graphics capability by displaying the status of all the and image capture process, and provides immediate display of the recently acquired imag

- SMDigCam interfaces the digital camera through a high-performance BitFlow interface i another interface card provides input for an external camera triggering signal.
- The camera settings such as exposure control and f/stop can be controlled either manu automatically by the program.
- Images can be stored in either BMP or TIFF formats.
- Image acquisition can be controlled in a variety of ways such as interactively through tl interface, by an external hardware signal coming either from a flight management system device, and by the program by specifying the time interval between image captures.
- Image imprinting such as date and time or image name is available
- Images are named by date and time and can be automatically stored in flighline-define
- Optional real-time image processing can provide histogram equalization on the fly.
- A log file records all the image captures and thus provides an easy handling of the ima(
- Image acquisition parameters are automatically saved and restored for new sessions.

The SMDigCam data acquisiti program was used to collect imagery during the emergen mapping operations by the E Group, who provided daily ai surveys in mapping hot spot: World Trade Center Ground ; between September 15 and (22, 2001.

http://www.earthdata.com/

http://www.newyork.earthc

SMDigCam System Requirements

SMDigCam real-time data acquisition software is built to run on Windows© NT/2000/XP P minimum system consists of:

- Dual Pentium III processor, 600 MHz or better is recommended.
- 256 Mbyte memory, at least ½ Gbyte hard-disk (about 60 images can be stored on on(
- BitFlow frame grabber with driver.
- Measurement Computing interface board for external triggering.
- Minimum 1024 x 768 resolution graphics (XVGA) and color monitor, LCD is recommend operations.
- ActiveX control enabled.

TOP

Windmill Software Ltd

Windows Engineering Software

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A

Alternating Current (ac)
Electric current whose flow alternates in direction. The number of times the current changes direction in one second is called the frequency. The usual waveform of ac is sinusoidal.

Alumel
Trade name for an alloy of nickel with up to 5% aluminium, manganese and silicon, used with chromel in K-type thermocouples.

Ampere (A)
SI unit of electric current.

Amplifier
A circuit that produces a larger output power, voltage or current than was applied at its input.

Amplitude
The size or magnitude of a signal.

Analogue-to-Digital (A-D) Converter
Converts an analogue signal (such as a voltage signal from a temperature sensor) into a digital signal suitable for input to a computer. See Issues 3 and 4 of our newsletter for more information on A-D converters.

Anti-Alias Filter
An anti-alias (or anti-aliasing) filter allows through the lower frequency components of a signal but stops higher frequencies, in either the signal or noise, from introducing distortion. Anti-alias filters are specified according to the sampling rate of the system and there must be one filter per input signal. See Issue 8 of our newsletter for more information.

Argument
Input parameter to a program.

ASCII
American Standard Code for Information Interchange. Coding for text files.

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Backbone
The major multi-channel link in a network, from which smaller links branch.

Background noise
Extraneous signals that might be confused with the required measurement.

Batch process
Any process on which operations are carried out on a limited number of articles, as opposed to continuous process.

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CE
Conformite Europeene. A mark that is affixed to a product to designate that it is in full compliance with all applicable European Union legal requirements.

Chromel
An alloy of nickel with about 10% chromium, used with Alumel in K-type thermocouples.

Cold Junction
The reference junction of a thermocouple which is kept at a constant temperature.

COM port.
A connection on a computer into which a serial device may be plugged.

Common-Mode Signal
A signal applied simultaneously to both inputs of a differential amplifier.

Common-Mode Rejection Ratio (cmrr)
The ability of the differential amplifier to obtain the difference between the + and - inputs whilst rejecting the signal common to both..

Contact emf
Electromotive force which arises at the contact of dissimilar metals at the same temperature, or the same metal at different temperatures.

Constantan
An alloy of 40% nickel and 60% copper, with a high volume resistivity and almost negligible temperature coefficient. Used with copper in T-type thermocouples.

Continuous Process
Method of producing an article continuously.

Current
Current is often used to transmit signals in noisy environments because it is much less affected by environmental noise pick-up. Before A-D conversion the current signals are usually turned into voltage signals by a current-sensing resistor.

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Data Acquisition
The automatic collection of data from sensors, instruments and devices: in a factory, laboratory or in the field.

DCE
DCE stands for Data Circuit-Terminating Equipment or Data Communications Equipment. It is part of the RS232 standard and represents, for example, an instrument or modem attached to your PC.

Differential Amplifier
One whose output is proportional to the difference between two inputs.

Differential Inputs
Using differential inputs can reduce noise picked up by the signal leads. For each input signal there are two signal wires. A third connector allows the signals to be referenced to ground. The measurement is the difference in voltage between the two wires: any voltage common to both wires is removed. For more information see Issue 11 of our *Monitor* Newsletter.

Digital-to-Analogue (D-A) Converter
Used to produce analogue output signals. These may be control signals or synthesised waveforms.